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Oberseminar Institut für Algebraische Geometrie

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Surfaces with many algebraic structures

According to the GAGA principle, if two complex projective varieties are biholomorphic, then they are isomorphic as algebraic varieties. This is false for non-compact varieties; the first counterexample was due to Serre. Rodion Déev and I discovered ([arXiv:2303.10764](https://arxiv.org/abs/2303.10764)) a new example of a complex surface admitting countably many algebraic structures. Namely, we blow up the projective plane in sufficiently general nine points and remove the strict preimage of the elliptic curve passing through them. Our construction of the other algebraic structures relies on the Hopf transform – “surgery” that replaces a neighborhood of an elliptic curve with a neighborhood of a different elliptic curve.

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Alle Interessierten sind herzlich eingeladen.